

AMENDMENTS TO THE CLAIMS:

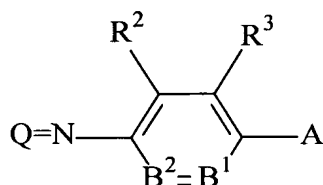
This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS:

Claim 1 (Currently Amended): An ink jet ink ~~for ink jet recording~~ comprising a colored particulate dispersion formed by dispersing, in a water based medium, colored particulates containing an oil soluble dye and a block copolymer formed from a hydrophobic segment and a hydrophilic segment;

wherein the oil soluble dye is a compound represented by general formula (I):

General Formula (I)



wherein Q represents an atomic group which is needed for the compound expressed by general formula (I) to have absorption in a visible range or in a near infrared range; A represents -NR⁴R⁵ or a hydroxy group, and R⁴ and R⁵ each independently represents a hydrogen atom, an alkyl group, an aryl group, or a heterocyclic group; B¹ represents =C(R⁶)- or =N-; B² represents -C(R⁷)= or -N=; R², R³, R⁶ and R⁷ each independently represents a hydrogen atom or a substituent; and R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bind together to form rings;

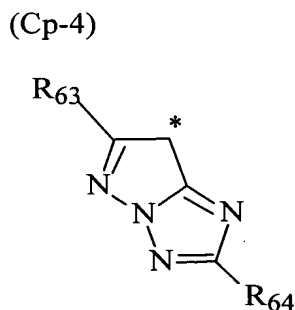
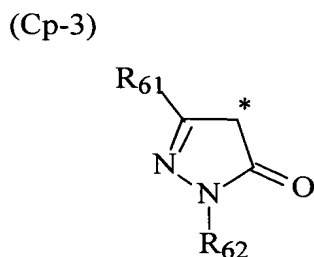
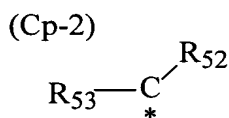
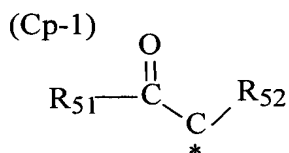
wherein a monomer forming the hydrophobic segment is ester acrylate, ester methacrylate, N-mono-substituted acrylamide, N-di-substituted acrylamide, N-mono-substituted methacrylamide, N-di-substituted methacrylamide, olefin, or vinyl ether;

wherein the block copolymer has an ionic group selected from a carboxyl group, a sulfo group, a sulfino group, and a phosphino group, and the ionic group is present in an amount from 0.2 mmol/g or more to 5.0 mmol/g or less; and

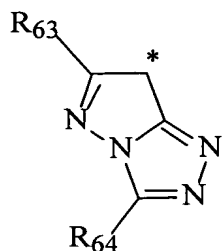
wherein an average particle diameter of the colored particulates is in a range of 1 to 500 nm.

Claim 2 (Canceled)

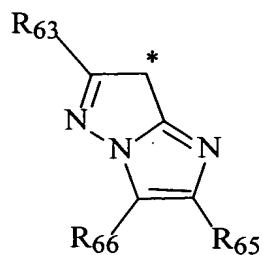
Claim 3 (Currently Amended): An ink jet ink ~~for ink jet recording~~ according to claim 2, wherein, in general formula (I), Q is a group represented by any of following (Cp-1) through (Cp-28):



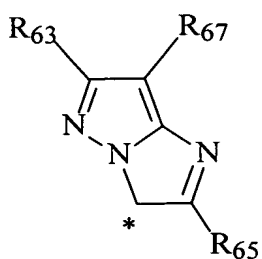
(Cp-5)



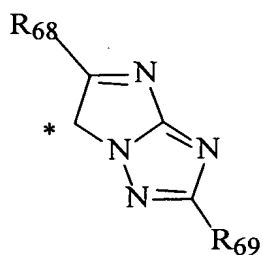
(Cp-6)



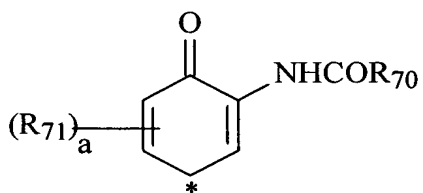
(Cp-7)



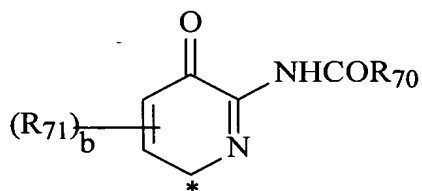
(Cp-8)



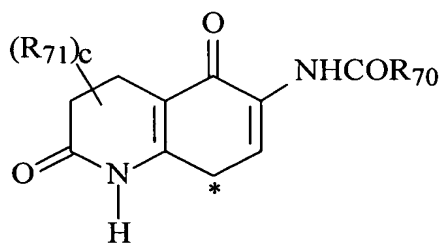
(Cp-9)



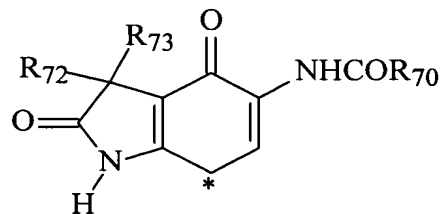
(Cp-10)



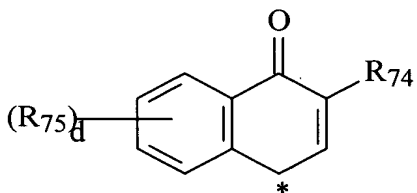
(Cp-11)



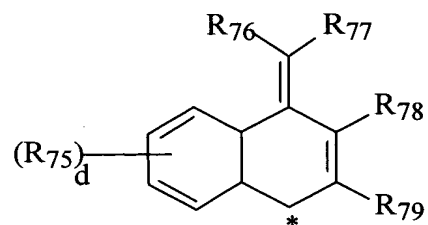
(Cp-12)



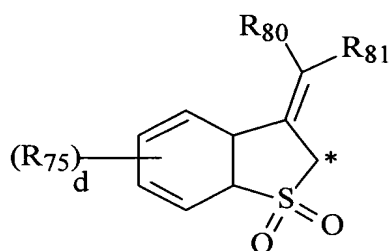
(Cp-13)



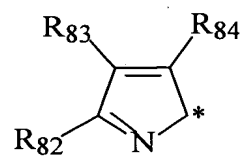
(Cp - 14)



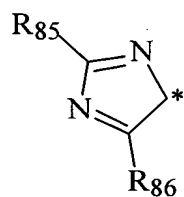
(Cp-15)



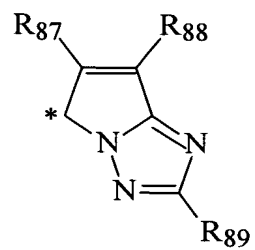
(Cp-16)



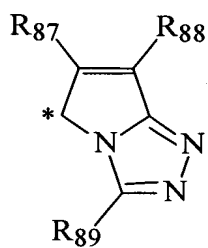
(Cp-17)



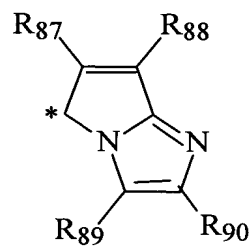
(Cp-18)



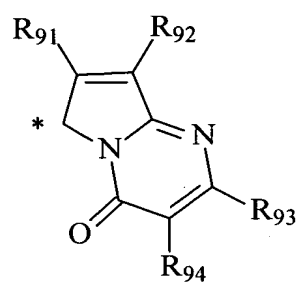
(Cp - 19)



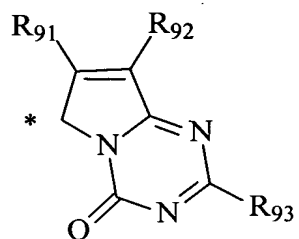
(Cp - 20)



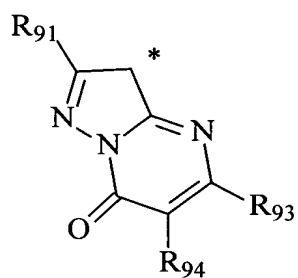
(Cp-21)



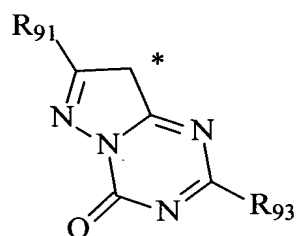
(Cp-22)



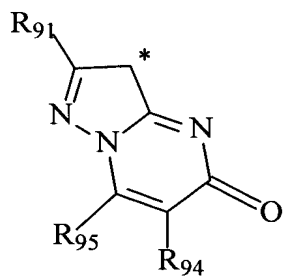
(Cp-23)



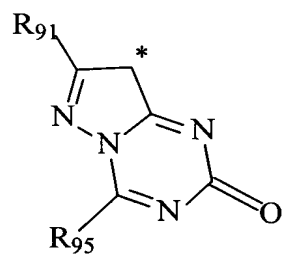
(Cp-24)



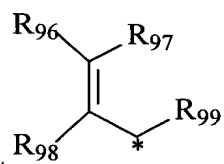
(Cp-25)



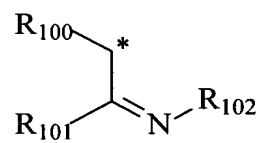
(Cp-26)



(Cp-27)



(Cp-28)



wherein, in formula (Cp-1), R_{51} represents an alkyl group, an aryl group, a heterocyclic group, or an alkoxy group; and R_{52} represents a carbamoyl group or a cyano group;

in formula (Cp-2), R_{53} represents an aryl group or a heterocyclic group; and R_{52} represents the same groups represented by R_{52} in (Cp-1);

in formula (Cp-3), R_{61} represents an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an amino group, an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an aminocarbonylamino group, or an alkoxycarbonylamino group; and R_{62} represents an alkyl group, an aryl group, or a heterocyclic group;

in formulas (Cp-4) and (Cp-5), R_{63} and R_{64} each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, or an alkoxycarbonylamino group;

in formulas (Cp-6) and (Cp-7), R_{63} represents the same groups as listed above; and R_{65} , R_{66} , and R_{67} each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, an alkoxycarbonylamino group, an acyl group, an alkoxycarbonyl group, or a carbamoyl group;

in formula (Cp-8), R_{68} and R_{69} each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, an alkoxycarbonylamino group, an acyl group, an alkoxycarbonyl group or a carbamoyl group;

in formulas (Cp-9), (Cp-10), (Cp-11) and (Cp-12), R_{70} represents an alkyl group, an aryl group or a heterocyclic group; R_{71} represents a halogen atom, an alkyl group, an aryl group, a heterocyclic group, a silyl group, an acylamino group, an alkyl or aryl sulfonylamino group, an amino group, an aminocarbonylamino group, an alkylthio group, an arylthio group, an alkoxy group, or an alkoxycarbonylamino group; R_{72} and R_{73} each represents a hydrogen atom or an alkyl group; a represents an integer from 0 to 3; b represents an integer from 0 to 2; c represents an integer from 0 to 4; and when a, b or c is plural, the plural R_{71} may be the same or different;

in formula (Cp-13), R_{74} represents a carbamoyl group, an alkoxycarbonyl group, a cyano group, a sulfamoyl group, an acylamino group, an aminocarbonylamino group, an alkoxycarbonylamino group, or an alkyl or arylsulfonylamino group; R_{75} represents a halogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, or an alkoxycarbonylamino group; d represents an integer from 0 to 4; and when d is plural, the plural R_{75} may be the same or different;

in formula (Cp-14), R_{75} and d represent the same as listed above; R_{78} and R_{79} represent any of the groups which may be represented by R_{75} ; and R_{76} and R_{77} represent a cyano group, a sulfamoyl group, an alkyl or arylsulfonyl group, an acyl group, an alkoxycarbonyl group, or a carbamoyl group;

in formula (Cp-15), R_{75} and d represent the same as listed above; and R_{80} and R_{81} represent a cyano group, a sulfamoyl group, an alkyl or arylsulfonyl group, an acyl group, an alkoxycarbonyl group, or a carbamoyl group;

in formula (Cp-16), R₈₂, R₈₃, and R₈₄ each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, an alkoxycarbonylamino group, an acyl group, an alkoxycarbonyl group or a carbamoyl group;

in formula (Cp-17), R₈₅ and R₈₆ each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an alkyl or arylsulfonylamino group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group, an aminocarbonylamino group, an alkoxycarbonylamino group, an acyl group, an alkoxycarbonyl group or a carbamoyl group;

in formulas (Cp-18) through (Cp-20), R₈₇ and R₈₈ each represents a carbamoyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a cyano group, a sulfamoyl group, an alkanesulfonyl group, an arenesulfonyl group, or a nitro group; and R₈₉ and R₉₀ each represents a hydrogen atom, an alkyl group, an aryl group, or a heterocyclic group;

in formulas (Cp-21) through (Cp-26), R₉₁ and R₉₂ each represents an alkyl group, an aryl group, a heterocyclic group, a carbamoyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a cyano group, a sulfamoyl group, an alkanesulfonyl group, an arenesulfonyl group, or a nitro group; and R₉₃, R₉₄ and R₉₅ each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an acylamino group, an aminocarbonylamino group, an alkoxycarbonylamino group, an alkyl or arylsulfonylamino group, a halogen group, an amino group, an alkylthio group, an arylthio group, an alkoxy group, or an aryloxy group;

in formula (Cp-27), R₉₇, R₉₈ and R₉₉ each represents a hydrogen atom, a cyano group, a sulfamoyl group, an alkyl or arylsulfonyl group, an acyl group, an alkoxycarbonyl group or

a carbamoyl group; and R₉₆ represents an amino group, an alkylthio group, an arylthio group, an alkoxy group, or an aryloxy group; and

in formula (Cp-28), R₁₀₀ and R₁₀₁ each represents a hydrogen atom, a perfluoroalkyl group, a cyano group, a nitro group, a sulfamoyl group, an alkyl or arylsulfonyl group, an acyl group, an alkoxycarbonyl group, a carbamoyl group, an alkylthio group or an arylthio group; and R₁₀₂ represents an alkyl group, an aryl group, a heterocyclic group, a sulfamoyl group, an alkyl or arylsulfonyl group, an acyl group, an alkoxycarbonyl group, or a carbamoyl group.

Claim 4 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 3, wherein, in general formula (I), Q is a group represented by any of (Cp-1), (Cp-2), (Cp-4), (Cp-5), (Cp-11), (Cp-12), (Cp-18), (Cp-21), or (Cp-22).

Claim 5 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 1, wherein the water based medium is one of water, a water soluble organic solvent, or a mixture of a water miscible liquid and water.

Claim 6 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 1, wherein the block copolymer is a block copolymer formed from a hydrophobic segment A and a hydrophilic segment B, and is AB type, B¹AB² type, or A¹BA² type, where A¹ and A² may be the same or different, and B¹ and B² may be the same or different.

Claim 7 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 6, wherein the block copolymer is a vinyl polymer.

Claim 8 (Canceled)

Claim 9 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 7, wherein a vinyl monomer B forming the hydrophilic segment B is acrylic acid, methacrylic acid, ester acrylate having a hydrophilic substituent at the ester moiety, ester methacrylate, acrylamide, or methacrylamide.

Claim 10 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 1, wherein a mole ratio of the vinyl monomer A contained in the hydrophobic segment A to a vinyl monomer B is 100:0 to 60:40.

Claim 11 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 9, wherein a mole ratio of the vinyl monomer B contained in the hydrophilic segment B to a vinyl monomer A is 100:0 to 60:40.

Claim 12 (Canceled)

Claim 13 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 1, wherein a molecular weight (Mn) of the block copolymer is from 1000 to 100,000.

Claim 14 (Currently Amended): An ink jet ink ~~for ink-jet recording~~ according to claim 1, wherein the colored particulates are prepared by emulsification by one of pouring water

into an organic solvent phase containing the block copolymer and the oil soluble dye, or pouring the organic solvent phase into water.

Claim 15 (Currently Amended): An ink jet ink ~~for ink jet recording~~ according to claim 1, wherein the colored particulates contain a hydrophobic high boiling point organic solvent having a boiling point of 150°C or more.

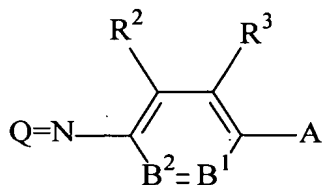
Claim 16 (Currently Amended): An ink jet ink ~~for ink jet recording~~ according to claim 1, wherein, in the colored particulate dispersion, an amount of the block copolymer which is used is 10 to 1000 parts by mass with respect to 100 parts by mass of the oil soluble dye.

Claim 17 (Currently Amended): An ink jet ink ~~for ink jet recording~~ according to claim 1, wherein an amount of the colored particulates contained in the colored particulate dispersion is 1 to 45% by mass.

Claim 18 (Canceled)

Claim 19 (Currently Amended): An ink jet ink recording method wherein recording is carried out by using an ink jet ink ~~for ink jet recording~~ comprising a colored particulate dispersion formed by dispersing, in a water based medium, colored particulates containing an oil soluble dye and a block copolymer formed from a hydrophobic segment and a hydrophilic segment; wherein the oil soluble dye is a compound represented by general formula (I):

General Formula (I)



wherein Q represents an atomic group which is needed for the compound expressed by general formula (I) to have absorption in a visible range or in a near infrared range; A represents $\text{-NR}^4\text{R}^5$ or a hydroxy group, and R⁴ and R⁵ each independently represents a hydrogen atom, an alkyl group, an aryl group, or a heterocyclic group; B¹ represents $\text{=C(R}^6\text{)-}$ or =N- ; B² represents $\text{-C(R}^7\text{)=}$ or -N= ; R², R³, R⁶ and R⁷ each independently represents a hydrogen atom or a substituent; and R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bind together to form rings;

wherein a monomer forming the hydrophobic segment is ester acrylate, ester methacrylate, N-mono-substituted acrylamide, N-di-substituted acrylamide, N-mono-substituted methacrylamide, N-di-substituted methacrylamide, olefin, or vinyl ether;

wherein the block copolymer has an ionic group selected from a carboxyl group, a sulfo group, a sulfino group, and a phosphino group, and the ionic group is present in an amount from 0.2 mmol/g or more to 5.0 mmol/g or less; and

wherein an average particle diameter of the colored particulates is in a range of 1 to 500 nm.

Claim 20 (Canceled)

Claim 21 (Currently Amended): A co-emulsification dispersion method for producing the ink jet ink of claim 1, wherein an organic solvent phase, which contains the block copolymer and the oil-soluble dye, is emulsified and made into particulates by either adding water to the organic solvent phase or adding the organic solvent phase into water.